

What is claimed is:

1 1. A driving method for an active matrix OLED display,
2 wherein the display has at least one pixel, each having a switch
3 transistor, a driving transistor, an OLED and a storage
4 capacitor, the switching transistor has a control terminal
5 coupled to a scan electrode and a first terminal coupled to
6 a data electrode, the driving transistor has a control
7 terminal coupled to a second terminal of the switching
8 transistor and a first terminal coupled to a power voltage,
9 the OLED has an anode couple to the second terminal of the
10 driving transistor and a cathode coupled to a common
11 electrode, and the storage capacitor has one terminal coupled
12 to the control terminal of the driving transistor, the driving
13 method comprising:

14 providing a first current to flow through the OLED of
15 the pixel in a first period of one display period,
16 according to a video signal on the data electrode
17 and a scan signal on the scan electrode; and
18 providing a second current to flow through the OLED in
19 a second period of the display period to neutralize
20 carrier accumulation inside the OLED, wherein the
21 first current and the second current flow in
22 opposite directions.

1 2. The driving method as claimed in claim 1, wherein
2 the second current is produced by pulling the potential at
3 the anode of the OLED to lower than that at the cathode of
4 the OLED.

1 3. The driving method as claimed in claim 1, wherein
2 the second current is produced by pulling the potential at
3 the cathode of the OLED to higher than that at the anode of
4 the OLED.

1 4. The driving method as claimed in claim 1, wherein
2 the second current is produced by applying a negative voltage
3 across the anode and the cathode of the OLED.

1 5. The driving method as claimed in claim 1, wherein
2 the time ratio of the first period to the second period is
3 between 1:1 ~10⁵:1.

1 6. The driving method as claimed in claim 1, wherein
2 the time ratio of the first period to the second period is
3 10:1.

1 7. A driving method for an active matrix OLED display,
2 wherein the display has at least one pixel each having a switch
3 transistor, a driving transistor, an OLED and a storage
4 capacitor, the switching transistor has a control terminal
5 coupled to a scan electrode and a first terminal coupled to
6 a data electrode, the driving transistor has a control
7 terminal coupled to a second terminal of the switching
8 transistor and a first terminal coupled to a power voltage,
9 the OLED has an anode coupled to the second terminal of the
10 driving transistor and a cathode coupled to a common
11 electrode, and the storage capacitor has one terminal coupled
12 to the control terminal of the driving transistor, the driving
13 method comprising:

14 providing a first current to flow through the OLED of
15 the pixel in a first period of a first display
16 period, according to a first video signal on the
17 data electrode and a first scan signal on the scan
18 electrode;
19 providing a reverse current to flow through the OLED in
20 a second period of the first display period to
21 neutralize carrier accumulation inside the OLED,
22 wherein the first current and the reverse current
23 flow in opposite directions;
24 providing a second current to the OLED of the pixel in
25 a second display period, according to a second
26 video signal on the data electrode and a second scan
27 signal on the scan electrode;
28 providing a third current to the OLED of the pixel in
29 a first period of a third display period, according
30 to a third video signal on the data electrode and
31 a third scan signal on the scan electrode; and
32 providing the reverse current to the OLED in a second
33 period of the third display period to neutralize
34 carrier accumulation inside the OLED, wherein the
35 third current and the reverse current flow in
36 opposite directions.

1 8. The driving method as claimed in claim 1, wherein
2 the second current is produced by pulling the potential at
3 the anode of the OLED to lower than that at the cathode of
4 the OLED.

1 9. The driving method as claimed in claim 1, wherein
2 the second current is produced by pulling the potential at

3 the cathode of the OLED to higher than that at the anode of
4 the OLED.

1 10. The driving method as claimed in claim 1, wherein
2 the second current is produced by applying a negative voltage
3 across the anode and the cathode of the OLED.

1 11. The driving method as claimed in claim 1, wherein
2 the time ratio of the first period to the second period is
3 in a range between 1:1 ~10⁵:1.

1 12. The driving method as claimed in claim 1, wherein
2 the time ratio of the first periods to the second periods is
3 10:1.

1 13. A driving method for active matrix OLED display,
2 wherein the display includes at least one pixel, a data
3 electrode, a scan electrode and a common electrode, the pixel
4 has an OLED, the driving method comprising:

5 providing a first current to flow through the OLED of
6 the pixel in a display period, according to a first
7 video signal on the data electrode and a first scan
8 signal on the scan electrode; and

9 providing a reverse current to flow through the OLED of
10 the pixel before the next display period to
11 neutralize carrier accumulation inside the OLED,
12 wherein the first current and the reverse current
13 flow in opposite directions.

1 14. The driving method as claimed in claim 13, wherein
2 the OLED has an anode and a cathode, and the second current

3 is produced by pulling the potential at the cathode of the
4 OLED to higher than that at the anode of the OLED.

1 15. The driving method as claimed in claim 13, wherein
2 the OLED has an anode and a cathode, and the second current
3 is produced by pulling the potential at the anode of the OLED
4 to lower than that at the cathode of the OLED.

1 16. The driving method as claimed in claim 13, wherein
2 the OLED has an anode and a cathode, the second current is
3 produced by applying a negative voltage across the anode and
4 the cathode of the OLED.

1 17. A pixel structure for active matrix OLED display,
2 comprising:
3 a switching transistor having a control terminal coupled
4 to a scan electrode and a first terminal coupled
5 to a data electrode;
6 a driving transistor having a control terminal coupled
7 to a second electrode of the switching transistor
8 and a first terminal coupled to a power voltage;
9 a OLED having an anode coupled to the second terminal
10 of the driving transistor, and a cathode coupled
11 to a common electrode;
12 a storage capacitor having one terminal coupled to the
13 control terminal of the driving transistor; and
14 a neutralization control circuit coupled between the
15 OLED and a first voltage, according to a control
16 signal, to pull down the potential at the anode of
17 the OLED thereby inducing a reverse current to
18 neutralize carrier accumulation inside the OLED,

19 wherein the potential of the first voltage is lower
20 than that at the cathode of OLED.

1 18. The pixel structure as claimed in claim 17, wherein
2 the neutralization control circuit is a transistor having a
3 control terminal coupled to the control signal, a first
4 terminal coupled to the anode of the OLED and a second terminal
5 coupled to the first voltage.